

I claim:

- 1 1. A telecommunications toll switch system connecting callers with
2 called service sponsors, comprising:
3 toll switches forming a network;
4 a shared database computer connected to at least one of said toll
5 switches, said shared database computer having a database storing
6 routing plans defining routes connecting said callers to at least one of said
7 service sponsors;
8 said database computer being programmed to return instructions to
9 said at least one of said toll switches in response to a query from said at
10 least one of said toll switches, said query being generated by said at least
11 one of said toll switches in response to a call from one of said callers to
12 said at least one of said service sponsors, said query indicating initial
13 route information followed by said call before reaching said at least one of
14 said toll switches, said instructions indicating a specific route for said call
15 to be implemented by said at least one of said toll switches in response to
16 said instructions;
17 said initial route information providing an indication of a route
18 followed by said call from said one of said callers to said at least one of
19 said toll switches;
20 said routing plan defining alternative routes from which said
21 specific route is selected by said database computer in response to said
22 routing plan and said initial route information.

- 1 2. A system as in claim 1, wherein said routing plan is such that
2 said specific route is a first route when said initial route includes an
3 indication that said call was operator-assisted.

1 3. A system as in claim 1, further comprising:
2 an announcement system connected to said at least one of said toll
3 switches, said announcement system having a recording indicating that a
4 specified rate is to be applied to said call;

5 said routing plan being such that said specific route is a first route
6 when said information includes an indication that said call was operator-
7 assisted;

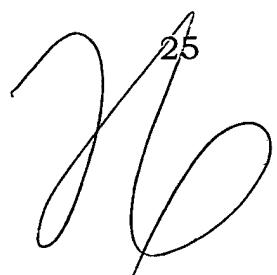
8 said first route being such that said announcement system is
9 controlled to play said recording when said specific route is said first
10 route.

1 4. A system as in claim 1, wherein said routing plan is such that
2 said specific route is a second route when said information includes an
3 indication that said call originated from a cellular phone.

1 5. A system as in claim 1, wherein said routing plan is such that
2 said specific route is a third route when said information lacks an
3 identification of the caller.

1 6. A system as in claim 5, further comprising a support system
2 computer connected to said database computer and programmed to
3 update said routing plans in response to input data directly entered by
4 said service sponsors.

1 7. A system as in claim 1, further comprising:
2 an announcement system connected to said at least one of said toll

25


Kawecki 3

3 switches, said announcement system having a recording indicating that a
4 specified rate is to be applied to said call;

5 said routing plan being such that said specific route is a third route
6 when said information lacks an identification of the caller;

7 said third route being such that said announcement system is
8 controlled to play said recording when said specific route is said third
9 route.

1 8. A system as in claim 1, wherein:

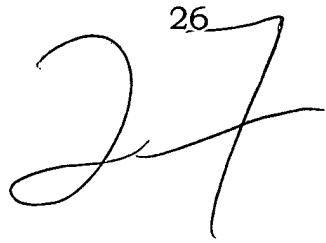
2 said routing plan is such that said specific route is a third route
3 when said information lacks an identification of the caller; and

4 said third route includes an operator for obtaining credit information
5 from said one of said callers.

1 9. A system as in claim 1, wherein said routing plan is such that
2 said specific route is a fourth route when said information includes an
3 indication that said call originated from one of a specified LEC and a
4 specified area code.

1 10. A system as in claim 9, further comprising a support system
2 computer connected to said database computer and programmed to
3 update said routing plans in response to input data directly entered by
4 said service sponsors.

1 11. A system as in claim 1, further comprising a support system
2 computer connected to said database computer and programmed to
3 update said routing plans in response to input data directly entered by

A handwritten signature in black ink, appearing to read "J. F. Kawecki".

4 said service sponsors.

1 12. A telecommunications toll switch system connecting callers with
2 called service sponsors, comprising:

3 a network having toll switches;

4 a database computer connected to an originating toll switch of said
5 toll switches; and

6 database computer having a database storing routing plans
7 defining alternative routes that connect said callers to a termination of one
8 of said service sponsors;

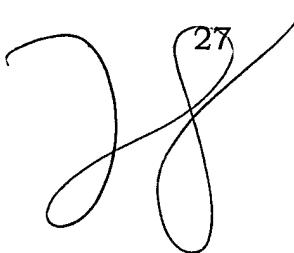
9 each of said alternative routes being determined based on at least
10 one parameter supplied in a query receivable by said database computer
11 from said originating switch;

12 said originating switch being programmed to generate said query
13 responsively to a call received by said originating switch from one of said
14 callers to said one of said service sponsors;

15 said originating switch being programmed to implement a specific
16 route determined based on said at least one parameter after receiving
17 data from said database computer responsive to said routing plan and
18 said query;

19 said parameter being one of data identifying a calling party number
20 used by said caller to place said call, data indicating that said call arrived
21 at said originating switch through a human operator, and data indicating
22 that said call originated from a cellular telephone.

1 13. A system as in claim 12, wherein said parameter is data

27


Kawecki 3

2 indicating that said call arrived at said originating switch through a human
3 operator.

1 14. A system as in claim 12, further comprising:

2 an announcement system connected to said at least one of said toll
3 switches, said announcement system having a recording indicating that a
4 specified rate is to be applied to said call;

5 said parameter is data indicating whether said call arrived at said
6 originating switch through a human operator and said routing plan being
7 defined such that said specific route is a first route when said parameter
8 indicates said call arrived through a human operator;

9 said first route being such that said announcement system is
10 controlled to play said recording when said specific route is said first
11 route.

1 15. A system as in claim 12, wherein said parameter is data
2 indicating that said call originated from a cellular telephone.

1 16. A system as in claim 12, wherein said parameter is data
2 identifying a calling party number used by said caller to place said call or
3 data incompletely identifying said calling party number.

4
5 17. A system as in claim 12, further comprising:

6 a support system computer connected to said database computer
7 and programmed to update said routing plans in response to input data
8 directly entered by said service sponsors;

9 said support system computer being programmed to represent said

10 routing plans as at least one graphical object with each of said alternative
11 routes corresponding to a branch-shaped portion of said graphical object.

1 18. A system as in claim 12, further comprising:

2 an announcement system connected to said at least one of said toll
3 switches, said announcement system having a recording indicating that a
4 specified rate is to be applied to said call;

5 said parameter being data identifying a calling party number used
6 by said caller to place said call or data incompletely identifying said calling
7 party number;

8 said routing plan being defined such that said specific route is a
9 third route when said data incompletely identifies said calling party
10 number;

11 said routing plan being defined such when said specific route is
12 said third route, said announcement system is controlled to play said
13 recording when said specific route is said third route.

1 19. A system as in claim 12, wherein:

2 said parameter is data identifying a calling party number used by
3 said caller to place said call or data incompletely identifying said calling
4 party number;

5 said routing plan being defined such that said specific route is a
6 third route when said data incompletely identifies said calling party
7 number;

8 said third route directs said call to a human operator.

1 20. A telecommunications toll switch system connecting callers with

2 called service sponsors, comprising:
3 a network having toll switches;
4 a database computer connected to an originating toll switch of said
5 toll switches; and
6 database computer having a database storing routing plans
7 defining alternative routes that connect said callers to a termination of one
8 of said service sponsors;
9 each of said alternative routes being determined based on at least
10 one parameter supplied in a query receivable by said database computer
11 from said originating switch;
12 said originating switch being programmed to generate said query
13 responsively to a call received by said originating switch from one of said
14 callers to said one of said service sponsors;
15 said originating switch being programmed to implement a specific
16 route determined based on said at least one parameter after receiving
17 data from said database computer responsive to said routing plan and
18 said query;
19 said parameter being data defining, at least partly, an originating
20 route by which said call arrived at said originating switch prior.

1 21. A method for permitting control of call routing and billing by
2 sponsors of pay-for-call services in a toll network system having toll
3 switches, a central database computer connected to said toll switches
4 having a routing plan stored therein, comprising the steps of:
5 modifying said call routing plans by insertion or deletion of an
6 element that causes a call to be routed to a first termination when an ANI
7 record detected by an originating one of said toll switches is incomplete;

8 transmitting ANI data relating to a call from said originating one of
9 said toll switches to said central database computer;

10 determining specific instructions for routing said call from said
11 routing plan modified by said step of modifying and transmitting said
12 specific instructions to said originating one of said toll switches;

13 receiving at said originating one of said toll switches said specific
14 instructions and routing said call from said originating one of said toll
15 switches to said first termination when said ANI record detected by said
16 originating one of said toll switches is incomplete.

1 22. A method for permitting control of call routing and billing by
2 sponsors of pay-for-call services in a toll network system having toll
3 switches, a central database computer connected to said toll switches
4 having a routing plan stored therein, comprising the steps of:

5 modifying said call routing plans by insertion or deletion of an
6 element that causes a call to be routed to a first termination if an OSPS
7 record, indicating that said call originated through an operator, detected
8 by an originating one of said toll switches is incomplete;

9 transmitting OSPS record relating to a call from said originating one
10 of said toll switches to said central database computer;

11 determining specific instructions for routing said call from said
12 routing plan modified by said step of modifying and transmitting said
13 specific instructions to said originating one of said toll switches;

14 receiving at said originating one of said toll switches said specific
15 instructions and routing said call from said originating one of said toll
16 switches to said first termination when said OSPS record detected by said
17 originating one of said toll switches indicates said call originated through

18 an operator.

1 23. A telecommunications toll switch system connecting callers
2 with called service sponsors, comprising:

3 toll switches forming a network;

4 a shared database computer connected to at least one of said toll
5 switches, said shared database computer having a database storing
6 routing plans corresponding to at least one of said service sponsors;

7 said routing plans defining a specific route to be implemented by an
8 originating toll switch of said toll switches when a call is received by said
9 originating switch, said specific route being one of at least two alternative
10 routes, said at least two alternative routes possibly ending at the same
11 destination;

12 said two alternative routes being modifiable by a support system
13 computer connected to said database computer through a program
14 running thereon and addressable through at least one of telephone
15 prompting, communication through direct modem connection via a
16 termination, and connection through the Internet;

17 said two alternative routes being defined by a conditional branch
18 point, called a test node, from which stem two alternate branches, each
19 branch corresponding to a one of said two alternative routes, said specific
20 route corresponding to the one of said two alternate branches that is
21 connected to an outcome of said test node that satisfies a condition of
22 said test node;

23 said condition of said test node being determined by a feature of
24 data corresponding to an origin of said call, said data being
25 communicated to said database computer through a query from said

26 originating toll switch to said shared database computer.

1 24. A telecommunications toll switch system connecting callers
2 with called service sponsors, comprising:

3 toll switches forming a network;

4 a shared database computer connected to at least one of said toll
5 switches, said shared database computer having a database storing
6 routing plans corresponding to at least one of said service sponsors;

7 a billing recorder connected to said toll switch, said billing recorder
8 recording a duration of a call and a rate to be applied to said call on a
9 billing record;

10 said routing plans defining a specific route to be implemented by an
11 originating toll switch of said toll switches when a call is received by said
12 originating switch, said specific route being one of at least two alternative
13 routes, said at least two alternative routes possibly ending at the same
14 destination;

15 said two alternative routes being modifiable by a support system
16 computer connected to said database computer through a program
17 running thereon and addressable through at least one of telephone
18 prompting, communication through direct modem connection via a
19 termination, and connection through the Internet;

20 said two alternative routes being defined by a conditional branch
21 point from which stem two alternate branches, each branch corresponding
22 to a one of said two alternative routes, said specific route corresponding
23 to the one of said two alternate branches that is connected to an outcome
24 of said test node that satisfies a condition of said test node;

25 at least one of said two alternate branches having an object, called

26 a rate node, that forces said rate to be applied to said call to be
27 overridden when said at least one of said two alternate branches is
28 connected to said outcome, whereby said billing recorder records an
29 override rate on said billing record when said condition is satisfied;

30 said branch point being a test node in which said condition is
31 determined by a parameter indicating an origin of said call from a caller of
32 said callers, said parameter being communicated to said database
33 computer through a query from said originating toll switch to said shared
34 database computer.

1 25. A system as in claim 24, wherein said parameter indicates
2 whether said call originated through operator-assistance.

1 26. A system as in claim 24, further comprising:

2 an announcement system connected to said at least one of said toll
3 switches, said announcement system having a recording indicating that
4 said rate is to be applied to said call;

5 said routing plan being such that said one of said two alternative
6 branches defines a first route when said parameter indicates that said call
7 was operator-assisted;

8 said first route being defined such that said announcement system
9 is controlled to play said recording when said specific route is said first
10 route.

1 27. A system as in claim 24, wherein said parameter indicates
2 whether said call originated from a cellular phone.

1 28. A system as in claim 24, wherein said parameter is an
2 indication of a caller ANI or lack thereof which identifies the calling
3 telephone number or, if the ANI is lacking, the local exchange company of
4 said caller.

1 29. A system as in claim 28, further comprising:
2 an announcement system connected to said at least one of said toll
3 switches, said announcement system having a recording indicating that
4 said rate is to be applied to said call;

5 said routing plan being such that said one of said two alternative
6 branches defines a third route when said parameter indicates that an ANI
7 is lacking;

8 said third route being defined such that said announcement system
9 is controlled to play said recording when said specific route is said third
10 route.

1 30. A system as in claim 28, wherein:
2 said routing plan is such that said specific route is a third route
3 when said parameter indicates said ANI is lacking; and
4 said third route routes said call through an operator to obtain credit
5 information from said caller.

1 31. A system as in claim 1, wherein said parameter is an indication
2 that said call originated from one of a specified LEC and a specified area
3 code.

1 32. A telecommunications switch, comprising:

2 a communication terminal for communicating with a central
3 database computer;

4 said telecommunications switch being programmed to generate
5 data defining an origin of said call and to transmit said data to said central
6 database computer;

7 said telecommunications switch being further programmed to
8 receive routing instructions from said central database computer,
9 responsively to a transmission of said data, and to implement said routing
10 instructions to route said call.

1 33. A switch as in claim 32, wherein said data includes an ANI of
2 said call.

1 34. A switch as in claim 32, where in said data includes an
2 indication that said call arrived at said switch through operator assistance.

1 35. A switch as in claim 32, wherein said data includes an
2 indication that said call arrived at said switch from a cellular phone.

3
4 36. A method for controlling a plurality of telecommunications
5 switches, comprising:

6 receiving, at a database computer connected to at least one of said
7 plurality of telecommunications switches, call-origin-data defining an
8 origination route of a call to said at least one of said plurality of
9 telecommunications switches;

10 determining at said database computer a selected route
11 responsively to said condition and said call-origin-data;

36
SJ

12 transmitting in response thereto said selected route back to said
13 telecommunications switch;

14 said step of transmitting being responsive to a database of said
15 database computer defining routes through which said call may be routed
16 to a final termination, said selected route being one of said routes, said
17 selected route being selected from among said routes responsively to a
18 condition satisfiable by said call-origin-data.

1 37. A method as in claim 36, wherein said call-origin-data includes
2 data indicating a calling number (ANI) of said call.

1 38. A method as in claim 36, wherein said call-origin-data includes
2 data indicating that said call originated through an operator.

1 39. A method as in claim 36, wherein said call-origin-data includes
2 data indicating that said call originated from a cellular phone.

1 40. A method as in claim 36, wherein at least one of said
2 alternative routes includes a rate node defining a rate to be applied to said
3 call.

1 41. A method as in claim 36, wherein:
2 said call-origin-data includes data indicating one of an ANI or an
3 indication that said ANI is not provided by a local exchange company from
4 which said call originated; and
5 said selected route includes an indication that an announcement is
6 to be played by said toll switch when said data indicates that said ANI is

Kawecki 3

7 not provided, said message indicating that a surcharge is to be applied to
8 said call.

1 42. A method as in claim 36, wherein:

2 said call-origin-data includes data indicating one of an ANI or an
3 indication that said ANI is not provided by a local exchange company from
4 which said call originated; and

5 said selected route includes one of a human operator platform and
6 a digit-prompter to obtain information from a caller making said call when
7 said data indicates that said ANI is not provided.

1 43. A method for controlling a telecommunications switch
2 connected to a central database computer, comprising the steps of:

3 generating origin data defining an origin of said call;
4 transmitting said origin data to said central database computer;
5 receiving routing instructions from said central database computer,
6 responsively to a transmission of said origin data, and
7 implementing said routing instructions to route said call.

1 44. A method for controlling a computer for controlling a plurality of
2 telecommunications switches, comprising:

3 storing, on said computer, routes through which said call may be
4 routed to a final termination, said selected route being one of said routes,
5 said selected route being selected from among said routes responsively to
6 a condition satisfiable by call-origin-data;

7 receiving at said computer said call-origin-data defining an
8 origination route of a call to said at least one of said plurality of

9 telecommunications switches;
10 determining a selected route responsively to said condition and
11 said call-origin-data; and
12 transmitting said selected route to said telecommunications switch.

1 45. A method for controlling a computer for controlling a plurality of
2 telecommunications switches, comprising:

3 storing, on said computer, routes through which said call may be
4 routed to a final termination, said selected route being one of said routes,
5 said selected route being selected from among said routes responsively to
6 a condition satisfiable by call-origin data defining a route of said call to an
7 originating switch of said plurality of switches;

8 receiving at said computer said call-origin-data;

9 determining a selected route responsively to said condition and
10 said call-origin-data;

11 said step of determining being effective to determine an override
12 rate applicable to said call; and

13 transmitting said selected route to said telecommunications switch.

1 46. A method as in claim 45, further comprising the step of
2 controlling a billing record to record data responsive to said rate data.

1 47. A method as in claim 46, further comprising the steps of
2 reading said billing record and generating data defining rates for billing for
3 said call.

- 1 48. A method as in claim 45, further comprising the steps of
- 2 controlling an announcement system connected to said switch to invoke
- 3 an announcement indicating a surcharge to be applied to said call
- 4 responsively to said instructions and said rate data.

202107271620